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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,619	12/27/2003	Vladimir S. Moxson		7498

7590 03/25/2009  
ADVANCE MATERIALS PRODUCTS, INC.  
1890 GEORGETOWN ROAD  
HUDSON, OH 44236

EXAMINER
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ZHU, WEIPING

ART UNIT	PAPER NUMBER
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1793

MAIL DATE	DELIVERY MODE
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03/25/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/748,619

**Applicant(s)**

MOXSON ET AL

**Examiner**

WEIPING ZHU

**Art Unit**

1793

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-19 is/are pending in the application.
- 4a) Of the above claim(s) 5-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-4 and 17-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status of Claims***

1. Claims 2-4 and 17-19 are currently under examination, wherein the claims 2-4 and 17 have been amended and the claims 18 and 19 have been newly added in applicant's amendment filed on December 22, 2008. Claims 15 and 16 have been cancelled in the same amendment.

### ***Status of Previous Rejections***

2. The previous rejection of Claim 17 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description and the previous rejections of Claims 2-4 and 15-17 under 35 U.S.C. 103(a) as being unpatentable over Brupbacher et al. (US 5,059,490) as stated in the Office action dated November 4, 2009 have been withdrawn in light of applicant's amendment filed on December 22, 2008. New grounds of rejections have been established as follows.

### ***Comments***

3. The redundant word "complex" in line 2 of claim 19 should be deleted.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 3, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brupbacher et al. (US 5,059,490) in view of Gottselig et al. (US 4,961,529).

With respect to claims 18 and 19, Brupbacher et al. ('490) discloses a fully-dense discontinuously-reinforced titanium matrix composite material comprising (col. 1, lines 30-43, col. 3, lines 23-58 and col. 4 lines 3-50):

- a. a matrix of a titanium alloy;
- b. ceramic and/or intermetallic hard particles comprising SiC and intermetallic of various metals present as desired in the matrix in the amount of 50% by volume or less (i.e. 0-50% by volume); and
- c. complex carbide particles comprising Ti, Zr, Hf, V, Nb, Ta, Cr, Mo and W separately provided in a reaction mixture that are at least partially soluble in the matrix at the sintering or forging temperature such as TiVC dispersed in the matrix.

Brupbacher et al. ('490) does not specify the presence of the complex carbide-silicide particles in the titanium matrix composite material as claimed. Gottselig et al. ('529) discloses forming  $Ti_3SiC_2$  by reacting Ti with SiC (abstract). It would have been obvious to one of ordinary skill in the art that during the direct synthesis process of Brupbacher et al. ('490), the claimed  $Ti_3SiC_2$  would be formed in the presence of SiC and Ti as evidenced by Gottselig et al. ('529) (abstract). Brupbacher et al. ('490) further discloses that the complex ceramic whisker loadings of from less than 5 to greater than

90 volume percent are achievable (col. 4, lines 3-10), which overlaps the claimed ranges. A prima facie case of obviousness exists. See MPEP 2144.05 I.

With respect to claim 2, Brupbacher et al. ('490) discloses that the porosity in the composite material can be eliminated (col. 8, lines 1-15), which reads on the claimed feature.

With respect to claim 3, Brupbacher et al. ('490) discloses that the matrix alloy is a titanium aluminide (col. 3, lines 48-58).

5. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brupbacher et al. (US 5,059,490) in view of Gottselig et al. ('529) as applied to claim 18 above and further in view of Toyoda et al. (US Pub. 2003/0084969 A1).

With respect to claim 4, Brupbacher et al. ('490) discloses that the ceramic and/or intermetallic hard particles comprise silicon carbide particles (col. 1, lines 30-43). Brupbacher et al. ('490) does not specify the  $\text{TiCr}_2$  as claimed. Toyoda et al. ('969 A1) discloses forming  $\text{TiCr}_2$  by reacting Cr with Ti (paragraphs [0037]-[0038]). It would have been obvious to one of ordinary skill in the art that during the direct synthesis process of Brupbacher et al. ('490), the claimed  $\text{TiCr}_2$  would be formed in the presence of Cr and Ti as evidenced by Toyoda et al. ('969 A1) (paragraphs [0037]-[0038]).

With respect to claim 17, Brupbacher et al. ('490) discloses that the composite material comprises silicon carbide and graphite as whisker material (col. 1, lines 30-43) in an amount of from less than 5 to greater than 90 volume percent (col. 4, lines 3-10).

***Response to Arguments***

6. The applicant's arguments filed on December 22, 2008 have been fully considered but they are moot in light of the new grounds of rejections as stated above.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WZ

3/14/2009

/George Wyszomierski/  
Primary Examiner  
Art Unit 1793